WLAN ACCESS POINT

High Performance WLAN Access Point

bintec W2004n

- High performance radio module for simultaneous 2.4/5GHZ op.
- 802.11n 3x3 Mimo technolgy with up to 2x450 Mbps PHY rate
- 200 mW transmitter power at 5 GHz band
- Managed by integr. WLAN controller or stand-alone operation
- Two Gigabit Ethernet ports with PoE (Power over Ethernet)
- Integrated Mimo antennas for 2.4/5 GHz
- Certified for operation in medical environments

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The bintec W2004n is an 11n access point with two single-band radio modules, allowing the device to operate in both the 2.4 GHz and 5 GHz bands simultaneously. The both radio modules with mimo 3x3 technique offer 2x450 Mbps bandwidth.

Product description

The unit is a perfect match for indoor wireless infrastructures designed to provide access over both frequencies. Smartphones, tablets, and older notebooks can connect to the the 2.4 GHz network while high-performance notebooks connect to the 5 GHz network.

Due to a high-performance radio module the W2004n works with up to 200 mW transmission power at the 5 GHz band. This is a duplication of the transmission power compared to the 2.4 GHz band.

You can run the bintec W2004n in any of three different modes. You can choose to operate the device as a stand-alone access point or manage it from a centrally-located bintec WLAN Controller. The W2004n can also function as a WLAN Controller itself (master access point) and manage up to six APs. The bintec WLAN Controller solution can be used in wireless networks with anywhere from 2 to 150 access points. The bintec WLAN Controller solution provides a scalable, end-to-end solution that lets you expand your network without migrating to a new technology. This flexibility protects your investments in existing infrastructures.

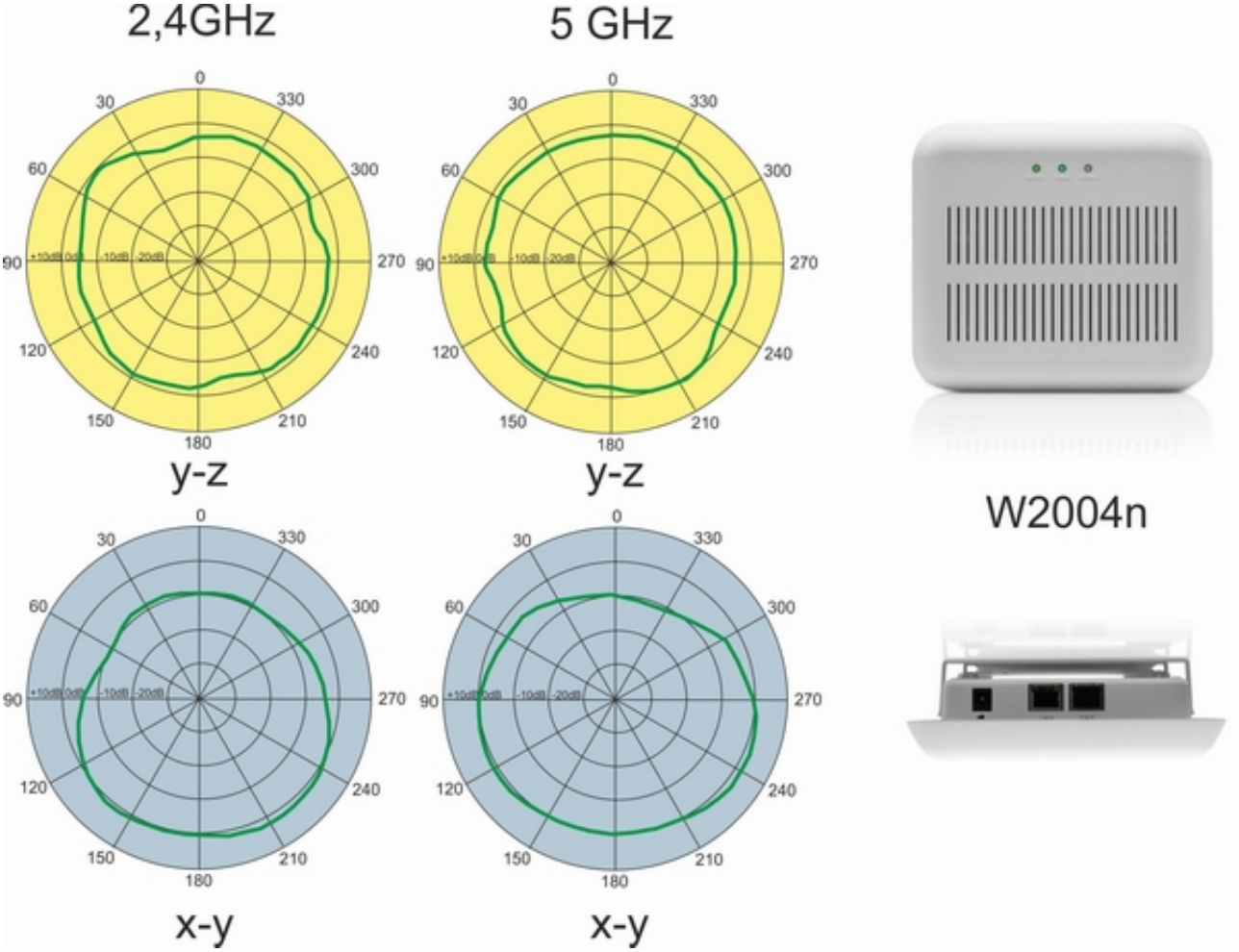
The clean lines and elegant design of the W2004n make it an appealing choice for wall- or ceiling-mounting. It looks perfectly at home in high-end office spaces, hotels, and hospitals. Despite its handsome appearance, this access point also knows how to blend in. We've placed the antennas inside the housing, and you can turn off the LEDs to eliminate distractions.

The included mounting hardware lets you quickly and easily mount the unit onto a ceiling or wall. For protection against theft, the device is also compatible with Kensington locks. As an alternative to wall-or ceiling-mounting, you can also place the device on a desktop thanks to the included rubber feet.

Take advantage of all the benefits our optional bintec HotSpot solution has to offer when using the W2004n as a stand-alone access point or together with the WLAN Controller software. Hotspots benefit hotels and restaurants, for instance, by allowing them to provide controlled wireless access to their customers.

The W2004n also supports handover and roaming. That means with a properly set up and surveyed wireless network managed by a bintec WLAN Controller, wireless devices enjoy seamless coverage throughout the network. And seamless coverage is a must if you are, for instance, implementing a VoWLAN (Voice over WLAN) solution or using wireless barcode scanners for logistics applications.

The W2004n gives you green IT right out of the box with its automatic energy-saving features. If no client is connected, the AP turns off any circuits not currently in use, downshifting to mimo 1x1. The Gigabit Ethernet ports support the energy-saving 802.3az standard, ensuring only as much energy as needed is used.



In addition to the Access Point operation modes the device could be used as WLAN client for direct connecting of ethernet devices (e.g. printers), to connect ethernet devices with existing wireless LANs.
Furthermore it is possible to use the device as bridge in Point-to-Multipoint operation mode with up to eight links. By the fact that a radio module can be used as Access Point and simultaneously as Bridgelink Master, it's easy to realize efficient Wireless Backbones. It is not possible to use a WLAN Controller at these both operating modes.

Variants

bintec W2004n (5510000320)	W2004n, WLAN Access Point with a dual concurrent radio module according 802.11abgn (2.4/5 GHz) Mimo 3x3, 2 Gigabit ETH, PoE, integr. antennas, incl. wall/ceiling mounting, incl. WLAN Controller license for Master AP, shipment without 100-240V wall adapter

Features

Software	
Roaming at Client Mode	No roaming, normal roaming, slow roaming, fast roaming, user defined roaming
Client Band Select	Shifting of clients to 5 GHz band
Client Management	Client overload protection (to much clients) and shifting of clients to other APs, if threshold is reached.
Airtime Fairness	Prevent performance limitation by slower or distant clients, which block the network
Roaming	Seamless roaming with IAPP (Inter Access Point Protocol), support according 802.11f
Buffer pool	For cushioning of peaks
WMM 802.11e QoS	Data prioritization for TOS data, 802.11e/WMM
WMM 802.11e power save	Support of active WLAN clients, which support 802.11e power save.
U-APSD	Unscheduled Automatic Power Save Delivery: this functionality contributes significantly to raise battery life of Voice-over-WLAN end devices
Internet dialup	PPPoE, PPTP (works at stand-alone operation or with WLAN controller, not at Master AP operation)
NTP	NTP client, NTP server, manually (works at stand-alone operation or with WLAN controller, not at Master AP operation)
DNS	DNS client, DNS server, DNS relay (works at stand-alone operation or with WLAN controller, not at Master AP operation)
DHCP	DHCP client, DHCP server, DHPC relay (DHCP Server and DHCP Relay works at stand-alone operation or together with WLAN controller, not at Master AP operation)
HotSpot	Requires a license. Works in WLC mode or in stand-alone operation, but not in Master-AP operation.

Operation Modes	
WLAN operation mode	WLAN Access Point (Managed Access Point; Master Access Point for 6 Aps; Standalone Access Point; Standalone Access Point + Bridgelink Master)
WLAN operation mode	Bridgelink (Point-to-multipoint) with up 8 links
WLAN operation mode	Transparent WLAN client to connect directly ethernet devices
WLAN	WLAN = Radio off; WLAN = Stand alone Access Point; WLAN = Managed Access Point; WLAN = Master Access Point for 6 APs

Hardware	
Certifications	Wi-Fi 802.11abgn Certified
Standards and certifications	R&TTE Directive 1999/5/EG; EN 60950-1 (IEC60950); EN 300 328; EN 301 489-17; EN 301 489-1; EN 301 893; EN 60601-1-2 (medical electrical devices - Part 1-2)
LAN / WAN	2 x 10/100/1000 Mbps Ethernet twisted pair, autosensing, auto MDI/MDI-X
WLAN	One high-performance radio module IEEE 802.11bgn Mimo 3x3 and a second high-performance radio module IEEE 802.11an Mimo 3x3 allow simultaneous operation at 2.4 (100mW) and 5 GHz (200 mW)
Real time clock	Even at power loss the system time will be available for several hours.

Hardware

Power supply	External wall power supply 230V / 9V DC, 1,3A, with high efficient switching power supply (The wall adapter is a accessory and not include the shipment).
PoE	Power-over-Ethernet according IEEE 802.3af, compatible with 802.3at PoE injectors
Status LEDs	Status, Activity for WLAN1, WLAN2 and Ethernet
Wall and ceiling mounting	Include the package
Desktop operation	Possible, rubber pad included the package
Theft protection	Theft protection integrated, Kensington ® compatibel
Dimensions	Approx. 15.9 cm x 14.5 cm x 4.3 cm (width x depth x hight)
Power consumption	< 10.7 Watt
Antenna	Integrated single-band Mimo antenna array with three antenna elements for each radio; 5 dBm gain @ 2,4 GHz; 7 dBm gain @ 5 GHz
Environment	Temperature operating: 0°C to 40°C; storage: -10°C to 70°C; rel. humidity 10 to 95% (non condensing)

Wireless LAN (Radio 1)

Tx Power @ 2.4 GHz 802.11b/g	1 Mbps 14 dBm; 2 Mbps 14 dBm; 5.5 Mbps 14 dBm; 11 Mbps 14 dBm; 6 Mbps 17 dBm; 9 Mbps 17 dBm; 12 Mbps 17 dBm; 18 Mbps 17 dBm; 24 Mbps 17 dBm; 36 Mbps 17 dBm; 48 Mbps 16 dBm; 54 Mbps 16 dBm
Tx Power @ 2.4 GHz 802.11n 20 MHz	MSC0/8 16 dBm; MSC1/9 16 dBm; MCS2/10 16 dBm; MCS3/11 16 dBm; MCS4/12 16 dBm; MSC5/13 16 dBm; MCS6/14 16 dBm; MCS7/15 15 dBm
Tx Power @ 2.4 GHz 802.11n 40 MHz	MSC0/8 15 dBm; MSC1/9 15 dBm; MCS2/10 15 dBm; MCS3/11 15 dBm; MCS4/12 15 dBm; MSC5/13 15 dBm; MCS6/14 15 dBm; MCS7/15 14 dBm
WLAN Standards	802.11b; 802.11g; 802.11n (Mimo 3x3) 2.4 GHz
Receiver Sensitivity @ 2.4 GHz 802.11b/g	6 Mbps -95 dBm; 54 Mbps -81 dBm
Receiver Sensitivity @ 2.4 GHz 802.11n 20 MHz	MSC0 -95 dBm; MCS7 -76 dBm; MCS8 -92dBm; MCS15 -73dBm; MCS16 -91dBm; MCS23 -71dBm
Extended Performance Feature	Beamforming, MRC (Maximum Ratio Combining), Block-Acknowlegde
Receiver Sensitivity @ 2.4 GHz 802.11n 40 MHz	MSC0 -91 dBm; MCS7 -73 dBm; MCS8 -90dBm; MCS15 -71dBm; MCS16 -80dBm; MCS23 -69dBm
Frequency bands 2.4 GHz indoor/outdoor (EU)	2.4 GHz Indoor/Outdoor (2412-2484 MHz) max. 100 mW EiRP (for Germany)
Data rates for 802.11b,g (2.4 GHz)	11, 5.5, 2 und 1 Mbps (DSSS modulation); 54, 48, 36, 24, 18, 12, 9 and 6 Mbps (OFDM modulation)
Data rates for 802.11n, 20 MHz channel bandwidth	MSC0-23 allow up to 216.7 Mbps PHY rate at 20 MHz channel bandwidth, 3 streams, Short guard intervall
Data rates for 802.11n, 40 MHz channel bandwidth	MSC0-23 allow up to 450 Mbps PHY rate at 40 MHz channel bandwidth, 3 streams, Short guard intervall

Wireless LAN (Radio 1)

Output power limitation (without antenna gain)	Adjustable in following steps: 5, 8,11,14,16 dBm and maximum. Maximal power varies depending on data rate, frequency band and country setting.
Output power @ 2.4 GHz	Max. 20dBm
Automatic Rate Selection (ARS)	Available
Transmission rate	Automatic
Number of spatial streams (802.11n)	1, 2 or 3
Bandwidth (802.11n)	20/40 MHz (bundling of two adjoining 20 MHz channels to one 40 MHz channel)
Short guard interval (802.11n)	On/off switchable; increase of throughput by reduction of the guard intervals from 800ns to 400ns
DTIM Period	Adjustable
Multi SSID	Up to 8 service sets per radio module, with virtual access points and own MAC address per SSID
Broadcast SSID	On/off switchable
Power management for clients	Registering of up to 250 clients per radio module simultaneously in access point mode. Default is 32 clients.
Country-specific settings	Channel settings according regulatory domain (802.11d) permitted
RTS/CTS	RTS/CTS threshold adjustable

Wireless LAN (Radio 2)

WLAN Standards	5 GHz; 802.11n (Mimo 3x3) 5 GHz
Receiver Sensitivity @ 5 GHz 802.11a/h	6 Mbps -94 dBm; 54 Mbps -81 dBm
Receiver Sensitivity @ 5 GHz 802.11n 20 MHz	MSC0 -94 dBm; MCS7 -76 dBm; MCS8 -93dBm; MCS15 -73dBm; MCS16 -91dBm; MCS23 -71dBm
Receiver Sensitivity @ 5 GHz 802.11n 40 MHz	MSC0 -91 dBm; MCS7 -71 dBm; MCS8 -89dBm; MCS15 -69dBm; MCS16 -87dBm; MCS23 -67dBm
Tx Power @ 5 GHz 802.11a/h	6 Mbps 16 dBm; 54 Mbps 15 dBm
Tx Power @ 5 GHz 802.11n 20 MHz	MSC0 16dBm; MCS7 13dBm; MCS8 15dBm; MCS15 13dBm; MCS16 15dBm; MCS23 12dBm
Tx Power @ 5 GHz 802.11n 40 MHz	MSC0 16dBm; MCS7 12dBm; MCS8 16dBm; MCS15 12dBm; MCS16 16dBm; MCS23 11dBm
Frequency bands 5 GHz indoor (EU)	5 GHz indoor (5150-5350 MHz) max. 200 mW EiRP allowed. This information is related to the permitted transmission power in Germany. The permitted transmission power may vary in other countries.
Frequency bands 5 GHz outdoor (EU)	5 GHz outdoor (5470-5725 MHz) max. 1000 mW EiRP allowed. This information is related to the permitted transmission power in Germany. The permitted transmission power may vary in other countries.
Data rates for 802.11a,h (5 GHz)	54, 48, 36, 24, 18, 12, 9 and 6 Mbps (OFDM modulation)

Wireless LAN (Radio 2)

Data rates for 802.11n, 20 MHz channel bandwidth	MSC0-23 allow up to 216,7 Mbps PHY rate at 20 MHz channel bandwidth, 3 streams, Short guard intervall
Data rates for 802.11n, 40 MHz channel bandwidth	MSC0-23 allow up to 450 Mbps PHY rate at 40 MHz channel bandwidth, 3 streams, Short guard intervall
Output power limitation (without antenna gain)	Adjustable in following steps: 5, 8,11,14,16 dBm and maximum. Maximal power varies depending on data rate, frequency band and country setting.
Output power @ 5 GHz	Max. 23 dBm (200mW EiRP)
Automatic Rate Selection (ARS)	Available
Transmission rate	Automatic
Number of spatial streams (802.11n)	1, 2 or 3
Bandwidth (802.11n)	20/40 MHz (bundling of two adjoining 20 MHz channels to one 40 MHz channel)
Short guard interval (802.11n)	On/off switchable; increase of throughput by reduction of the guard intervals from 800ns to 400ns
DTIM Period	Adjustable
Extended Performance Feature	Beamforming, MRC (Maximum Ratio Combining), Block-Acknowlegde
Multi SSID	Up to 8 service sets per radio module, with virtual access points and own MAC address per SSID.
Broadcast SSID	On/off switchable
Power management for clients	Registering of up to 250 clients per radio module simultaneously in access point mode. Default is 32 clients.
Country-specific settings	Channel settings according regulatory domain (802.11d) permitted.
RTS/CTS	RTS/CTS threshold adjustable

Security

Encryption WEP/WPA	WEP64 (40 Bit key), WEP128 (104 Bit key), WPA personal, WPA enterprise, WPA2 personal, WPA2 enterprise
IEEE802.11i authentication and encryption	802.1x/EAP-MD5, 802.1x/EAP-TLS, 802.1x/EAP-TTLS, 802.1x/EAP-PEAP, key management, PSK/TKIP encryption, AES encryption, 802.1x/EAP
Access control list (ACL)	MAC address filter for WLAN clients (white list) and dynamic and static blacklist. Black list function requires WLAN Controller
WIDS (Wireless Intrution Detection System)	Rogue AP detection: detect foreign Aps, which try to spy out data via SSIDs by permanent background scanning. This functionality requires WLAN Controller.
WIDS (Wireless Intrution Detection System)	Rogue Client Detection: detection and protection: detect conspicuous clients, which try to intrude or interfere the wireless network.In threat case blocking by dynamic black list. This functionality requires WLAN Controller.
WIDS (Wireless Intrution Detection System)	Neighbor AP Detection: detection of neighbor Aps with possible influence on performance of own network. By detected intrusion: SNMP trap or email alert. This functionality requires WLAN Controller.
VLAN	Network segments on layer2 possible. Per SSID one VLAN ID available. Static VLAN configuration according IEEE 802.1q; up to 32 VLANs supported.

Security

Inter cell repeating	Inter traffic blocking for public HotSpot (PHS) applications for preventing of communication radio client to radio client in a single radio cell.
NAT/PAT	Network & Port Address Translation / Stateful Packet Inspection: Isolation of complete network from public access

Energy Savining Functions

Mimo 1x1 shift down	The radio modules switching automatic to Mimo 1x1 operation, when no client is connected
802.3az support	The ethernet interfaces reduce the power consumption automatically, in case that no device is connected. In the case of the usage of a short ethernet cable, the circuit reduce the transmit power.
LED Mode	The LEDs has three operation mode: Status, Flashing, Off

Maintenance

Configuration a. maintenance:	
Configuration a. maintenance: Device configuration via	Telnet, SSH, HTTP, HTTPS, SNMP
Configuration a. maintenance: SNMP	SNMP (v1, v2, v3), USM model, VACM views, SNMP traps (v1, v2, v3) configurable, SNMP IP access list configurable
Configuration a. maintenance: SNMP configuration	Complete management with MIB-II, MIB 802.11, enterprise MIB
Configuration a. maintenance: SSH Login	Supports SSH V1.5 and SSH V2.0, for secure connections of terminal applications
Configuration a. maintenance: HTTP/HTTPS	Web-based configuration (FCI). The user interface is identical with almost all bintec elmeg products.
Configuration a. maintenance: Secure configuration	SSH available, HTTPS, Telnet protected against 'bruce force attacks'
Configuration a. maintenance: Configuration export and import	Load and save of configurations; save configuration optionally encrypted; optional, automatic controlled via scheduler
Configuration a. maintenance: On the fly configuration	No restart is required after the configuration has been changed.
Configuration a. maintenance: Software update	Software updates free of charge; loadable via file, HTTP or via direct access to the bintec elmeg upload server; optional, automatic controlled via scheduler
External Reporting:	
External reporting: Syslog	Syslog client, with different levels of messaging
External reporting: eMail alert	Automatic eMail alert by definable events (predefined events: new neighbor AP found, new rogue AP found, new slave AP found, managed AP failed)
External reporting: SNMP traps	Supported
Monitoring:	
Monitoring: Internal Log	Output via web-based configuration interface (http/https); filter: subsystem, level, message

Maintenance	
Monitoring: Interfaces	Statistic information of all physical and logical interfaces
Monitoring: WLAN	Detailed displays for radio, VSS. Displayed are per link: MAC address, IP address, TX packets, RX packets, signal strength for every receiving aerial, signal-to-noise ratio, data rate
Monitoring: Configurable scheduler (standalone AP)	In the operation mode 'standalone AP' the following events can be scheduled: Reboot device, activate/deactivate interface, activate/deactivate WLAN SSID, initiate 5 GHz band scan, trigger SW update, trigger configuration backup
Monitoring: Configurable scheduler (WLAN Controller)	In the operation mode 'WLAN Controller' the following events can be scheduled: Activate/deactivate WLAN SSID, initiate Neighbor band scan
Management: Supported management systems	WLAN Controller, DIME Manager, XAdmin
Management: Discovery Protocol	CAPWAP DHCP option according RFC1517
Management: WLAN Controller functionallity	Can act as stand-alone AP without WLAN controller; can act for small installation with up to 6 AP as WTP-AC (Master AP); can act as WTP (Managed by a WLAN Controller)
Documentation	German and English documentation on CD and in the Internet for download
Guarantee	2-year manufacturer's guarantee, online RMA handling

Accessoires

Pick-up Service / Warranty Extension	
Service Package 'medium' (5500000812)	Warranty extension of 3 years to a total of 5 years, including advanced replacement for Teldat products of the category 'medium'. Please find a detailed description as well as an overview of the categories on www.teldat.de/servicepackages.

Add-ons	
PS-EURO-Wx003n/Wx004n (5500001254)	Wall power supply with EU-plug for W1003n, W2003n, W2003n-ext, W2004n
Wall mounting for Wx003n/4n (5500001278)	Wall and ceiling mounting (spare part) for W1003n, W2003n, W2003n-ext, W2004n
Gigabit PoE Injector (5530000082)	PoE Injector for LAN 10/100/1000 Mbps, 100-240V, EU plug, output 48V/0.35A; suitable for Access Points, IP phones, etc.